



June 21, 2007

Robert Marriam
REMEDIIUM GROUP
6401 Polar Avenue
Memphis, TN 38119

ADMINISTRATIVE RECORD

Subject: Asbestos Fibers in Tree Bark

Dear Mr. Marriam:

You have called my attention to an article in press entitled "Trees as Reservoirs for Amphibole Fibers in Libby, Montana", lead author Tony J. Ward. This article introduces the results of sampling and analysis for tree bark samples taken in the vicinity of former vermiculite mining and processing operations in the Libby Montana area. The authors report findings ranging into the hundreds of millions of amphibole fibers per gram and square centimeter surface area of tree bark sampled.

In early May 2007, I received a bagged sample of red cedar tree bark which you indicated was collected from a tree located in the same general area as those trees subject of the referenced article.

Bureau Veritas North America's NVLAP accredited laboratory in Kennesaw, Georgia has performed microscopic analysis of the tree bark which you provided, and issued our laboratory report on June 19, 2007. The sample preparation and analytical procedures used for this red cedar tree bark study were to the greatest extent possible, identical to those used in the Ward et. al., study.

The results of our red cedar bark study are expressed as amphibole fibers; per gram of tree bark, and per aerial square centimeter of the bark's exposed surface. Additional gravimetric results are also provided, showing the mass of amphibole fiber versus the mass of tree bark analyzed. In summary, we found; between 586 thousand and 1.43 million ave = 956 thousand, amphibole fibers per gram, between 547 thousand and 1.28 million ave = 973 thousand, amphibole fibers per cm² and between 82 and 1, 865 ave = 679 nanograms of amphibole fibers per gram of tree bark analyzed. Expressed as a mass percentage the amphibole fibers ranged from 0.0000082 to 0.00019% ave = 0.000068% of the tree bark on which they were held.

Comparing the results of these two studies, the amphibole fiber per gm numbers reported by Ward et. al., range from less than, to approximately 500 times greater than those which we found. Ward et. al., did not report mass/mass results.

The apparent difference in fiber abundance between these two studies may be explained by sample selection. When preparing the red cedar samples, we cut full depth sections which measured approximately 3/4-inch thickness, and weighted approximately



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5 grams. In their discussion, Ward et. al., indicated that the samples from location 5 (railroad line), when cut full thickness, yielded results in the 3 million fiber/gm range; which is in the same order of magnitude as our results. Thus, it appears that the two studies are finding similar fiber per gram results, when full thickness bark samples are considered.

In their published paper, Ward et. al., express concerns regarding possible amphibole fiber exposures to persons who harvest, process or burn this "contaminated" wood. While the Ward et. al., work does show the presence of what appear to be very large numbers of amphibole fibers, the aggregate mass of amphibole fiber is very low, averaging 7/100,000ths of the overall bark mass. More importantly, the true test of any health risk associated with bark bound amphibole fiber, is whether or not persons harvesting, processing or burning such wood are exposed to airborne amphibole fibers. Evaluation of such risk can only be done through air sampling.

If you have any questions or need further explanation, please call me at (770) 499-7500.

Sincerely,

Charles L. Blake, CIH
Vice President, Director Technical Services
Clayton Group Services, Inc.

CLB/ss